

Date: Thursday, 28/08/2008 3:08:33 PM
User: Julie Lecocq

Process Sheet

| | |
|---|---------------------------------------|
| Customer : CU-DAR001 Dart Helicopters Services | Drawing Name : 206L FWD X-TUBE |
| Job Number : 41657 | |
| Estimate Number : 13220 | |
| P.O. Number : | Part Number : D206667103TRN |
| This Issue : 28/08/2008 S.O. No. : | Drawing Number : D206-667-143 REV B |
| Prsht Rev. : NC | Project Number : N/A |
| First Issue : / / Type : CROSSTUBES | Drawing Revision : B |
| Previous Run : 37983 | Material : |
| Written By : | Due Date : 10/09/2008 Qty: 1 Um: Each |
| Checked & Approved By : <u>JD 08.8.28</u> | |
| Comment : Est Rev:A 08-03-06 new issue DD verified by:ec Est Rev B 08.04.02 removed polish EC verified by DD | |

Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

| | | |
|-----|----------|--------------------|
| 1.0 | D6002115 | Crosstube Material |
|-----|----------|--------------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

| | | | |
|-----|-------------|-------------|-------|
| Qty | Part number | Description | Batch |
|-----|-------------|-------------|-------|

| | | | |
|---|-----------|-----------|---------------|
| 1 | D6002-115 | Crosstube | <u>534684</u> |
|---|-----------|-----------|---------------|

Check OD = 2.250"; ID = 1.750"

a.m 08.09.02 ①

| | | |
|-----|------------|----------------------------|
| 2.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE |
|-----|------------|----------------------------|



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA087

2-Turn first side as per Folio FA087

3-File down transition lines smooth.

a.m 08.09.02 ①

| | | |
|-----|-----|------------------------------|
| 3.0 | QC1 | INSPECT ALL DIM TO DIM SHEET |
|-----|-----|------------------------------|



Comment: INSPECT ALL DIM TO DIM SHEET

a.m 08.09.02 ①

| | | |
|-----|------------|----------------------------|
| 4.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE |
|-----|------------|----------------------------|



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA087

2-File down transition lines smooth.

3-Remove sand and plugs

a.m 08.09.02 ①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Date: Thursday, 28/08/2008 3:08:33 PM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L FWD X-TUBE

Job Number: 41657

Part Number: D206667103TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

Q.M 08-09-02①

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

AWM 8-9-3

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

AWM 8-9-3

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

① M 8-9-3

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in kanban rack

Location:

X-TUBE CELL

AWM 8-9-3

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/09/03

Job Completion



MF 08-09-03

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| | | |
|--|--|----------------------------------|
| DART AEROSPACE LTD | | Work Order: 41657 |
| Description: Crosstube Assembly (206L High Fwd) | | Part Number: D206-667-143 |
| Inspection Dwg: D206-667-143 Rev: B | | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

| Inspection Sheet | Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|------------------|-------------------|---------------|------------------|--------|--------|----------------------|----------|
| SIDE A | 2.240 | +0.005/-0.000 | 2.240 | / | | | |
| | 1.982 | +0.005/-0.000 | 1.982 | / | | | |
| | 2.019 | +0.005/-0.000 | 2.024 | / | | | |
| | 2.058 | +0.005/-0.000 | 2.063 | / | | | |
| | 2.097 | +0.005/-0.000 | 2.102 | / | | | |
| | 2.136 | +0.005/-0.000 | 2.136 | / | | | |
| | 2.176 | +0.005/-0.000 | 2.181 | / | | | |
| | 2.201 | +0.005/-0.000 | 2.204 | / | | | |
| | | | | | | | |
| | 0.125 | +/-0.010 | 0.125 | / | | | |
| | 0.400 x 30° | +/-0.010 | 0.400 x 30° | / | | | |
| | R0.063 | +/-0.010 | R0.063 | / | | | |
| | R0.500 | +/-0.010 | R0.500 | / | | | |
| | 4.438 | +/-0.030 | 4.438 | / | | | |
| | | | | | | | |
| SIDE B | 104.98 | +/-0.020 | 104.980 | / | | | |
| | 2.240 | +0.005/-0.000 | 2.240 | / | | | |
| | 1.982 | +0.005/-0.000 | 1.982 | / | | | |
| | 2.019 | +0.005/-0.000 | 2.024 | / | | | |
| | 2.058 | +0.005/-0.000 | 2.063 | / | | | |
| | 2.097 | +0.005/-0.000 | 2.102 | / | | | |
| | 2.136 | +0.005/-0.000 | 2.136 | / | | | |
| | 2.176 | +0.005/-0.000 | 2.181 | / | | | |
| | 2.201 | +0.005/-0.000 | 2.204 | / | | | |
| | | | | | | | |
| | 0.125 | +/-0.010 | 0.125 | / | | | |
| | 0.400 x 30° | +/-0.010 | 0.400 x 30° | / | | | |
| | R0.063 | +/-0.010 | R0.063 | / | | | |
| | R0.500 | +/-0.010 | R0.500 | / | | | |
| | 4.438 | +/-0.030 | 4.438 | / | | | |
| | | | | | | | |

| | | | |
|-------------------------|------------------------|----------------------------|-----|
| Measured by: G.M | Audited by: ANM | Prototype Approval: | N/A |
| Date: 07.09.02 | Date: 8-9-3 | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A | 04.05.06 | New Issue (P/O D206-667-103) | KJ/RF | |
| B | 06.03.09 | Dwg Rev updated | KJ/JLM | |



| | | | |
|------------------|-----------------|---|------------------------|
| DESIGN PH | DRAWN BY PH | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| CHECKED HDS | APPROVED HDS | DRAWING NO. D206-667-143 | REV. B SHEET 1 OF 3 |
| DATE 05.07.26 | | TITLE CROSSTUBE ASS'Y (206L HIGH FWD) NTS | |
| A | 00.11.17 | NEW ISSUE | |
| B | 05.07.26 | ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES | |

RELEASED
05-07-26

UNDER REVIEW
05-07-10 PH
re-draw detail F
PH 06.07.29

| Qty | Part Number | Description |
|-----|---------------|------------------------------------|
| X | D206-667-143 | CROSSTUBE ASSEMBLY (206L HIGH FWD) |
| 1 | D6002-115 | CROSSTUBE |
| 2 | D2873-043 | NUT PLATE |
| 2 | D2873-045 | NUT PLATE |
| 2 | D2856-400-694 | ABRASION STRIP |
| 2 | D2891-1 | SUPPORT |
| 14 | MS20601AD4W8 | RIVET (OR NAS9302B-4-8) |
| 4 | MS21920-20 | CLAMP |

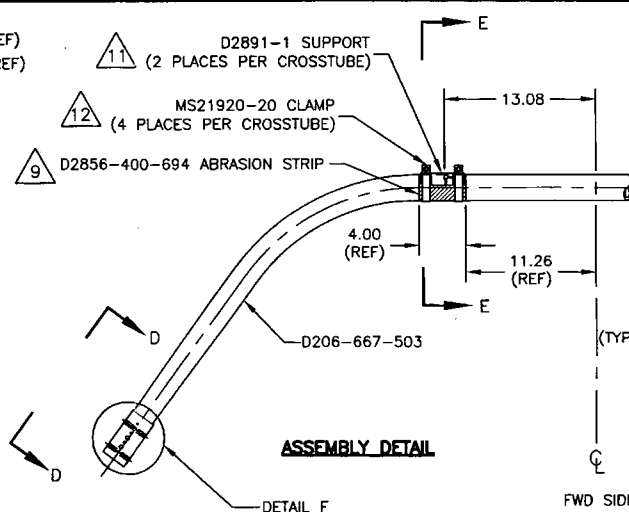
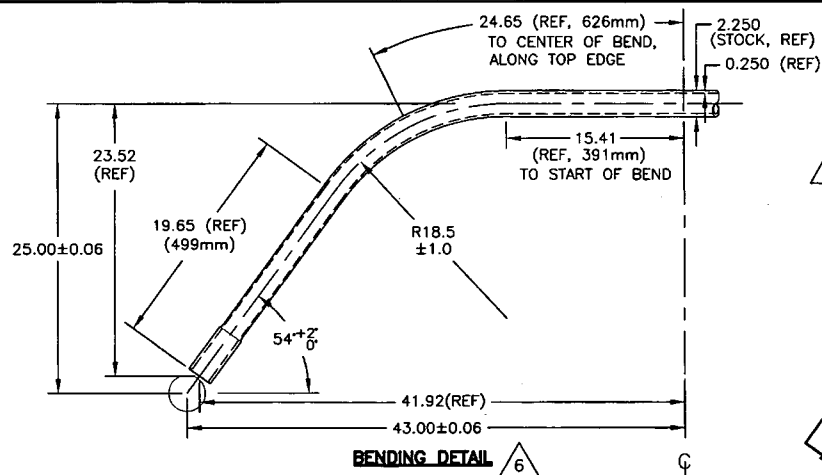
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SHOP COPY SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX 241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

RETURN TO
ENGINEERING
CONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 41657

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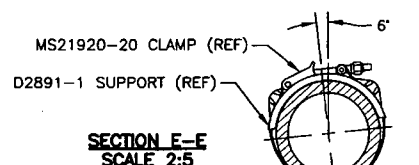
B $\phi 0.323^{+0.005}_{-0.000}$
(TYP 5 PLACES PER CUFF)
HOLE TO BE ALIGNED WITHIN ± 0.001
OF HOLE ON OTHER SIDE OF CUFF

PILOT $\phi 0.128$
C'SINK $\phi 0.225 \times 100'$
(TYP 7 PLACES PER CUFF)

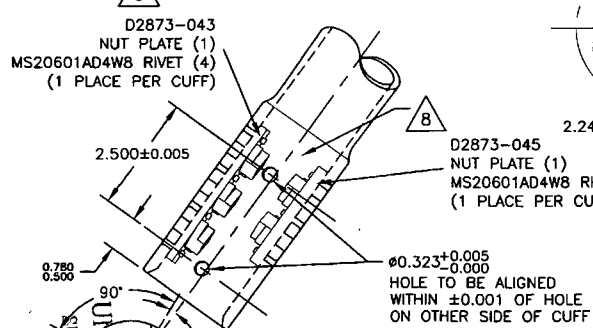
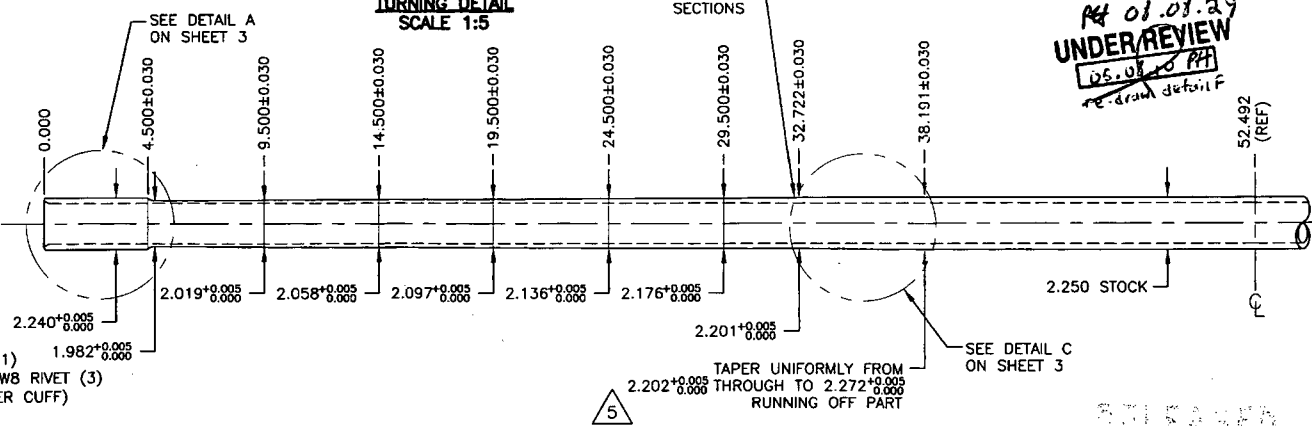
FWD SIDE ONLY

DETAIL F
SCALE 2:5

01.01.29
UNDER REVIEW
DS-08-20 PH
re-draw detail F



TURNING DETAIL
SCALE 1:5



| | | | | | |
|----------|--|---------------------------------|--|----------------------------|--------------|
| DESIGN | | DRAWN BY | | DART DART AEROSPACE LTD. | |
| PH | | PH | | HAMPSHIRE, ONTARIO, CANADA | |
| CHECKED | | APPROVED | | DRAWING NO. | REV. B |
| DS | | DS | | D206-667-143 | SHEET 2 OF 3 |
| DATE | | TITLE | | SCALE | |
| 05.07.26 | | CROSSTUBE ASS'Y (206L HIGH FWD) | | 1:10 | |

NO 4778
WORK ORDER
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ENGINEERING
SHOP COPY

VIEW D-D:
CUFF DETAIL
SCALE 2:5

